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Kessler et al.

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(54) **OUTPUT DEVICES FOR FABRIC-BASED ELECTRONIC EQUIPMENT**

(71) Applicant: **Apple Inc.**, Cupertino, CA (US)

(72) Inventors: **Patrick Kessler**, Mountain View, CA (US); **Daniel A. Podhajny**, San Jose, CA (US)

(73) Assignee: **Apple Inc.**, Cupertino, CA (US)

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(58) **Field of Classification Search**
None
See application file for complete search history.

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Primary Examiner — George Bugg
Assistant Examiner — Renee Dorsey
(74) *Attorney, Agent, or Firm* — Treyz Law Group, P.C.; Kendall W. Abbasi

(57) **ABSTRACT**

A fabric-based electronic device may include an electronic device housing coupled to fabric. Control circuitry may be mounted in the electronic device housing and may control the movement of an output device in the fabric that provides tactile output to a user. For example, the output device may include a wire enclosed within a flexible tube. The flexible tube may be intertwined with fibers in the fabric. The wire may include a kink or other irregularity that presses against the inner surface of the flexible tube. When the wire is rotated or moved into an appropriate position, the kink may press against the inner surface of the tube, which in turn forms a protrusion on the fabric. The protrusion may press against the user's body and may therefore be used to obtain the attention of a user that is wearing or holding the fabric-based electronic device.

19 Claims, 8 Drawing Sheets

